Secretary of State Information Management Strategy

SECRETARY OF STATE
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SACRAMENTO, CA 95814
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Approval Signatures:

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1 General Information

1.1 Document Control

DATE	VERSION	REVISION DESCRIPTION	REVISION AUTHOR
03/08/2012	1.0	Version 1.0	Al Pangelinan
04/13/2012	1.1	Version 1.1	Dr. Michael Cox
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07/06/2012	1.5	Version 1.5 – add co-lo sites	SOS ITD and PMO
04/25/2013	1.6	Version 1.6 – modify monitoring tools of Section 1	SOS ITD
05/14/2013	1.7	Version 1.7 – add Oracle database support	SOS ITD

The Secretary of State Information Management Strategy (IMS) is a living document. The Chief Information Officer must approve modifications to this document.

1.2 Purpose

This document presents an information management strategy for Secretary of State, with the intent of describing preferred technologies when building applications. The IMS document will evolve over time as business needs change, and opportunities and challenges are discovered. ITD intends to use the IMS document as a strategic direction document for those who design, develop, and maintain applications including Secretary of State employees, external contractors, consultants and business partners. Standardizing on a common development platform, language, and developer interface will allow the Secretary of State ITD staff the ability to respond dynamically to customer needs, maximize the use of staff resources and equipment with the objective to lower overall maintenance costs.

1.3 Scope

This document applies to all current and future Secretary of State projects.

This IMS document defines the desired:

- Application development languages
- Guidelines for user authentication
- Application platforms
- Database Management System

1.4 Background

The Information Technology Division (ITD) has historically been supporting a large number of applications created using a range of technologies. This diversification left our small ITD in the difficult position of finding and retaining a limited number of developers with the needed breadth of knowledge to maintain and enhance these aging systems. Preferred technologies are needed for current and new IT application development, as well as major upgrades to existing applications, to help minimize the number of technologies supported by ITD staff.

1.5 Services Provided by Secretary of State

The Secretary of State maintains computer technologies to facilitate critical services for the people of California, supporting the program areas of Business Programs, Elections, Political Reform, Archives and Administrative services. Some key services include Business Filings, Political Reform Filings, Election Results and Voter Registration, and several other important services.

1.6 IT Support Team

To provide these services, the agency maintains a very lean ITD of approximately forty staff which include the Help Desk, Managerial, Support Staff, Server Administrators, Network Administrators, and the Application Development Teams.

1.7 Secretary of State Data Center Infrastructure Overview

The Secretary of State maintains a Tier 2[1] Data Center at the headquarters location. The facility includes infrastructure hardware, data and telecommunication connections, environmental controls and monitoring and security devices.

The Secretary of State Data Center follows Telecommunications Industry Association (TIA) TIA-942, Telcordia Generic Requirements (GR) GR-3160 specifications and the American Society of Heating, Refrigerating and Air-Conditioning Engineers (ASHRAE) Guidlelines for environmental management. The Data Center is a raised floor facility with controlled access and 24x7x365 recorded video surveillance and temperature, humidity and water-penetration monitoring. Fire suppression is provided by 2-stage dry pipes. The addition of a clean agent, gaseous fire suppression system (Argonite/Inergen) is in the implementation stages. The raised floor supports an 18" plenum for power and cooling. Heating, Ventilation and Air Conditioning (HVAC) is provided by 5 multi-ton Computer Room Air Conditioning (CRAC)

[1] Uptime Institute: http://www.uptimeinstitute.com

units. The CRAC units are supplemented by "green" environmental controls to continuously monitor and adjust cooling throughout the room.

The Data Center power systems are anchored by a Liebert 80 kilo volt amperes (KVa) Uninterruptible Power Supply (UPS) connected to the building emergency power system. The building maintains a backup diesel generator to supply on-going emergency power. The UPS provide bridge power until the generator is on-line. The UPS supports two 3-phase cabinet grade power distribution units. Under floor power whips supply rack mounted power distribution units.

Data is carried in overhead ladders and trays. Network cabling is primarily Category 5, 5e and 6 copper 1000BT, supplemented by LC multi-mode fiber for backbone. Workstation connections are via 100BT floor switches distributed throughout the building. Network components are primarily located in 2-post style relay racks. Servers are contained in enclosure style racks.

The server base is Dell rackmount and blade servers (6^{th} – 12^{th} generation). Secretary of State supports VMWare technology and makes efforts to leverage virtualization where possible. Storage is provided by EMC Corporation and Dell Corporation EqualLogic Storage Area Network (SAN) and Network Attached Storage (NAS) systems. Printing systems include Sharp networked multi-function copiers, Hewlett Packard (HP) digital senders, HP workgroup and personal printers.

The Local network is extensively Virtual Local Area Networked (VLAN'd). The Wide-Area-Network is based on an Multiprotocol Label Switching (MPLS) cloud, with T1 or larger connections to each county office. Primary MPLS connection to MPLS cloud at Headquarters is via an Optical Carrier 3 (OC3). Secretary of State Headquarters is connected to the internet via DS3 circuit with DSL backup. Connection to the co-lo is via Gigaman circuit. Connection to the State Data Center (OTech) is via a Digital Signal 3 (DS3). Secretary of State makes efforts to support defense-in-depth and diversity of design and intrusion detection and prevention services. Secretary of State actively scans the entire network for vulnerability assessment and remediation.

Backup is on an EMC DataDomain and replicated to an identical system offsite (co-lo). Co-lo and off-site storage, services and equipment are considered part of the SOS Infrastructure. Secretary of State uses EMC/Legato Networker backup software. Backup retention period is typically 45-days, although special conditions exist for some systems and operations.

Operating systems in use are primarily Microsoft Windows and RedHat Enterprise Linux for servers. Legacy systems operate Tru64 Unix and Fedora. Desktop operating systems are Microsoft Windows. Office productivity tools include Microsoft Office (Word, Excel, PowerPoint, Project, Visio, Outlook), Adobe Acrobat, Rumba, and Internet Explorer.

Secretary of State currently uses Microsoft SQL and Oracle databases, Microsoft Exchange email and BlackBerry Enterprise services for messaging. Web services are provided by Microsoft Internet Information Services (IIS) and Apache. Secretary of State operates a multi-domain Microsoft Active Directory forest with 2 sites and tiered Domain Name System (DNS).

Secretary of State infrastructure systems utilize Simple Network Management Protocol (SNMP)-based reporting and monitoring systems. Secretary of State uses Dell OpenManage, Altiris CMS, SolarWinds Orion and Quest ActiveRoles server. Systems are monitored for overall performance, health, vulnerability assessment, space utilization and security compliance.

2 Preferred Technologies for Current and Future Projects

This section details the preferred technologies for current and future development projects. The preferred technologies are Microsoft's .NET Framework (C# emphasis) and Microsoft SQL Server or Oracle database platforms.

2.1 Software Development Environment

ITD has selected the Microsoft© .Net Framework as the desired standardized platform for all new application development work.

2.2 Version Control

2.2.1 Team Foundation Server 2010

ITD plans to use Visual Studio Team Foundation Server 2010 (TFS), which is part of the Microsoft Developer Network (MSDN) and is the collaboration platform at the core of Microsoft's application lifecycle management solution. The product includes a major configuration management tool, Team Foundation Server (TFS). TFS comprises tools which allow for version control, work item tracking, build automation, team portal, reporting and business intelligence, agile planning workbook, team explorer, and test case management. TFS also has the ability to manage requirements.

2.3 Server System

ITD uses the Windows Server Family as the preferred server system, which provides a solid foundation for all of the server workload and application requirements while being easy to deploy and manage. Currently, Windows Server 2008 will enable the Secretary of State system administrator to easily keep track of all users in Active Directory (AD), which is a directory service created by Microsoft for Windows domain networks. In addition, Windows Server 2008 contains Internet Information Services (IIS), which is a web server application that supports Hypertext Transfer Protocol (HTTP), HTTP Secure (HTTPS), File Transfer Protocol (FTP),

FTP Secure (FTPS), Simple Mail Transfer Protocol (SMTP), and Network News Transfer Protocol (NNTP).

The Secretary of State's preferred virtualization software is VMWare.

2.4 Database Management System

2.4.1 SQL Server

ITD has selected Microsoft SQL Server or Oracle as the preferred Database Management Systems.

2.4.2 Database Access

Microsoft SQL Server and Oracle databases should generally be accessed via stored procedures.

2.5 Project Management Software

ITD uses Microsoft Project on client computers to manage IT projects at Secretary of State.

3 Acronyms

ACRONYM	DEFINITION
ADS	Application Development Standards
ITD	Information Technology Division
LAN	Local Area Network
.NET	Microsoft .Net Framework
SOS	Secretary of State
TFS	Team Foundation Server
UI	User Interface